

Two new subspecies of *Cinnycerthia fulva* (Aves: Troglodytidae) from the southern Andes

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Abstract.—Analysis of geographic variation of plumage pattern and color within *Cinnycerthia fulva* (Troglodytidae) of the southern Andes revealed that this taxon, formerly treated as monotypic, consists of three discrete units. We describe two new subspecies; one (*C. f. fitzpatricki*) from the isolated Cordillera Vilcabamba, depto. Cuzco, Peru, and the other (*C. f. gravesi*) from depto. Puno, Peru, south to depto. Cochabamba, Bolivia.

Our previous analysis of geographic variation in size and plumage color of *Cinnycerthia* wren populations of the Andes (Brumfield & Remsen 1996) suggested that the form previously treated as a single species, *Cinnycerthia peruana* (Sepia-brown Wren; Troglodytidae) consists of at least three biological species: *C. olivascens* of the northern Andes south to northern Peru, *C. peruana* of the Andes of Peru from depto. Amazonas south to the Río Apurímac canyon, and *C. fulva*, from depto. Cuzco, Peru, to the Andes of Bolivia. We also noted that *C. fulva* contains at least three distinctive populations, only one of which is named: a dark-crowned population restricted to the isolated Cordillera Vilcabamba, depto. Cuzco, Peru; a population in the main Andes of southern depto. Cuzco, including the type locality of *fulva*; and a small-sized, pale population in the main Andes from southern depto. Puno to depto. Cochabamba, Bolivia. We herein formally name the two undescribed populations.

The Cordillera Vilcabamba, depto. Cuzco, Peru, is a mountain range isolated from the main chain of the Andes by deep river valleys with tropical, non-montane habitats (Terborgh 1971, Haffer 1974). Although

specimens of birds collected there by John Weske and John Terborgh have yet to be analyzed in a systematic manner, some endemic taxa have been described or are in the process of being described: *Schizoeaca vilcabambae* Vaurie et al., 1972 (see Remsen 1981), *Cranioleuca marcapatae weskei* Remsen, 1984, *Atlapetes rufinucha terborghi* Remsen, 1993, and undescribed subspecies of *Ochthoeca fumicolor* and *Coeligena violifer*.

Our analysis of geographic variation in the *Cinnycerthia peruana* superspecies (Brumfield & Remsen 1996) revealed that the population from the Cordillera Vilcabamba has a highly distinctive head pattern (Fig. 1) approached by no other population in the complex. This population, which is part of the complex that Brumfield & Remsen (1996) treated as a separate species, *C. fulva*, may be known as:

Cinnycerthia fulva fitzpatricki,
new subspecies

Holotype.—American Museum of Natural History (AMNH) 820311; mist-netted by John S. Weske and John W. Terborgh on 11 Jul 1967 at Cordillera Vilcabamba, elev. 2090 m, depto. Cuzco, Peru, 12°38'S,



Fig. 1. Head patterns, from top to bottom, of *Cinnycerthia peruana*, *C. f. fitzpatricki*, *C. f. fulva*, and *C. f. gravesi*.

73°36'W. The specimen, prepared by Weske (#1285), is a male (largest testis 2 ½ mm diam) with a completely pneumatized skull and little fat.

Paratypes.—Six other specimens were also mist-netted in the Cordillera Vilcabamba by Weske and Terborgh and prepared by Weske: AMNH 820059, 14 km E. of Lou-

isiana, 2050 m, 12°39'S, 73°34'W, ♂, 12 Aug 1966; AMNH 820210, 1740 m, 12°38'S, 73°38'W, ♀ (skull "scarcely pneumatized"), 12 Aug 1967; AMNH 820211, 1750 m, 12°38'S, 73°36'W, ♂ (skull completely pneumatized), 28 Jun 1968; AMNH 820309, 2160 m, 12°38'S, 73°36'W, ♀ (skull pneumatization incomplete), 29 Jun

1967; AMNH 820310, 2200 m, 12°38'S, 73°36'W, ♂ (skull pneumatization complete), 30 Jun 1967; and (6) AMNH 820507, 2830 m, 12°37'S, 73°32'W, ♂, 27 Jul 1967.

Diagnosis.—*Cinnycerthia f. fitzpatricki* can be distinguished at a glance from any other taxon in the genus by the narrow blackish border of the forecrown and the dark crown that contrasts with the back (Fig. 1). In *Cinnycerthia peruana*, the forecrown is slightly paler, not darker, than the rest of the crown and the crown and back are the same color. In *C. f. fulva*, the crown and back are concolorous. Otherwise, *fitzpatricki* is similar to *C. f. fulva* but has a whitish, not light brown, superciliary, and it is paler below (but sample sizes of both perhaps too small for confidence on this character). As noted by Brumfield & Remsen (1996), this subspecies may be larger in linear measurements than the other subspecies of *C. fulva*, but sample sizes are too small for statistical testing.

Description.—Capitalized color names are from Ridgway (1912). Forecrown narrowly Blackish Brown, blending to dark brown (near Raw Umber) crown, which then blends to a uniformly rich brown nape and back (Proutt's Brown). Uppertail coverts slightly more reddish than back. Outer webs of remiges (and both webs of inner secondaries) rich brown strikingly banded with narrow blackish bars; inner webs of most remiges dark fuscous. Upper wing coverts rich brown, faintly banded blackish; underwing coverts rich brown. Rectrices rich rufous brown strikingly banded with narrow blackish bars, slightly less conspicuously than remiges. Conspicuous buffy whitish superciliary from nares over eye to neck, sharply demarcated from the crown, which tends to be darkest at border of superciliary, and from broad, dark brown (Raw Umber) postocular stripe. Narrow whitish eyering. Lores brown, not distinctly separated from superciliary. Lower portion of auricular below postocular area dull light brownish (near Cinnamon), distinctly de-

marcated from postocular area. Malar region same color as lower auriculars. Chin and throat buffy whitish, noticeably paler than rest of underparts and malar area but not distinctly demarcated from them. Breast brown (Sayal Brown), blending to more rufous brown belly. Lower flanks, thighs, and undertail coverts darker (Proutt's Brown) than rest of underparts, as dark as back. Soft part colors recorded by Weske: iris brown; bill mainly black, shading to pale gray on gonys; legs brownish-gray. Measurements (mm): wing chord = 59.5; exposed culmen = 12.3; tail length = 55.8; tarsus length = 21.2.

Variation.—The seven specimens from the Vilcabamba show little individual variation except that one (AMNH 820211) has a slightly darker buffy chin, throat, and superciliary. One young bird (skull scarcely pneumatized; AMNH 820210) matches adult individuals closely in plumage, but its mandible is noticeably paler, a pale yellowish horn in the dried specimen (and described as "yellow-brown" by its preparator); those of the other birds are blackish. Measurements also show little variation (Table 1).

Natural history.—The only information available comes from the specimen labels. All specimens were mist-netted in humid, montane cloudforest and elfin forest, from 1740 to 2830 m, a considerable elevational range. Weske (1972) gave its elevational limits as 1710 to 2830 m. A male collected on 29 Jun had enlarged testes (left 6 mm, right 4.5 mm). A female collected on 12 Aug may have been in breeding condition (ovary 7 mm, largest ovum 1.2 mm). The other specimens did not have enlarged gonads.

Etymology.—It is a pleasure to name this distinctive taxon for John W. Fitzpatrick, whose fieldwork in depto. Cuzco and elsewhere in southern Peru has contributed greatly to knowledge of South American birds. His recent specimens from near the type locality of *C. fulva* (see below) were

Table 1.—Measurements (in mm) of *Cinnycerthia fulva fitzpatricki*, *C. f. fulva*, and *C. f. gravesi* southern Peru and northern Bolivia. The numbers in the columns are the means followed by the ranges in parentheses.

Population (n)	Wing chord	Exposed culmen	Tail length	Tarsus length
Males				
<i>C. f. fitzpatricki</i> (2)	60.8 (59.5–62.0)	12.6 (12.3–13.2)	55.6 (55.1–55.8)	21.5 (21.1–21.6)
<i>C. f. fulva</i> (2)	57.2 (56.7–58.6)	13.5 (13.4–13.5)	55.6 (54.2–57.0)	22.8 (21.1–24.4)
<i>C. f. gravesi</i> (depto. Puno; 2)	59.3 (57.8–60.7)	12.8 (12.4–13.1)	54.7 (53.5–55.8)	20.7 (20.4–21.0)
<i>C. f. gravesi</i> (depto. La Paz; 5)	57.2 (56.1–58.3)	12.9 (12.0–13.8)	54.6 (53.1–56.5)	22.0 (21.1–23.4)
<i>C. f. gravesi</i> (depto. Cochabamba; 3)	56.7 (54.8–58.8)	12.1 (11.2–13.6)	54.9 (53.0–56.7)	21.0 (20.9–21.0)
Females				
<i>C. f. fitzpatricki</i> (4)	55.7 (52.8–57.2)	12.8 (12.4–12.8)	54.1 (51.8–56.9)	20.7 (19.7–21.4)
<i>C. f. fulva</i> (0)	—	—	—	—
<i>C. f. gravesi</i> (depto. Puno; 5)	56.3 (54.1–58.8)	12.4 (11.2–13.1)	52.5 (50.3–55.4)	20.8 (19.9–21.7)
<i>C. f. gravesi</i> (depto. La Paz; 7)	55.0 (54.2–56.0)	12.9 (12.0–13.8)	54.6 (53.1–56.5)	22.0 (21.1–23.4)
<i>C. f. gravesi</i> (depto. Cochabamba; 2)	53.3 (52.1–54.4)	12.0 (12.0–12.0)	53.5 (53.1–53.9)	20.4 (19.8–21.0)

critical to the taxonomic conclusions of this paper.

Discussion.—Does the distinctive crown of *fitzpatricki* merit recognition as a species? Because its dark crown is a unique character within the genus *Cinnycerthia*, some might treat this taxon as a species. Because *fitzpatricki* is completely isolated from other populations of *Cinnycerthia*, direct assessment of reproductive isolation from other populations is not possible. However, we cannot find any comparable situation in the Troglodytidae in which two species-level taxa (e.g., in Hellmayr 1934, Ridgely & Tudor 1989, Fjeldså & Krabbe 1990) differ only in crown color and are otherwise extremely similar in plumage. Therefore, we recommend that *fitzpatricki* be treated as a subspecies of the biological species *C. fulva* in the absence of information on potential reproductive isolating mechanisms, particularly vocalizations. Although geographically closer to some populations of *C. peruana*, we place it within *C. fulva* because of the plumage similarities, particularly the prominent superciliary; also, most specimens of *fitzpatricki* clearly fit within *C. fulva* on the basis of measurements (Brumfield & Remsen 1996).

We previously proposed (Brumfield & Remsen 1996) that the remaining populations of *C. fulva* can be divided into two

discrete units, the population in depto. Cuzco (where the type locality is) and the population from depto. Puno, Peru, south through depto. La Paz, Bolivia, to depto. Cochabamba. As discussed by Brumfield & Remsen (1996), few specimens exist from depto. Cuzco. The two that we examined, collected by J. Weske and J. Fitzpatrick at Pillahuata, were collected approximately 15 km north of the type locality of *C. fulva*. They match Sclater's type description ("brown, pale, but ill-defined superciliary mark") in the key feature that we propose distinguishes the Cuzco population from those to the south, namely that the superciliary is not dull white, but ochraceous brown. We have yet to find a specimen from farther south with a superciliary that is not at least partially whitish. Also, the auriculars of the specimens from Pillahuata are darker than those from farther south, thereby reducing the contrast between it and the dark brown postocular stripe.

Hellmayr (1934), who examined the unique type of *fulva* in the British Museum, stated that it "is more reddish, less olivaceous, throughout than a Bolivian series. The divergency requires confirmation by additional specimens." We are unable to see any such differences between the Pillahuata specimens and specimens from farther south. Curiously, Hellmayr did not re-

mark upon the light brown superciliary of the type specimen, although he emphasized the "well-defined, large, buffy white superciliary streak" as a character for distinguishing *C. fulva* from *C. peruana*, which applies primarily to specimens that he also examined from Bolivia.

The Weske-Fitzpatrick specimens are the only two from depto. Cuzco, other than the type specimen, that we have been able to locate. Although a larger sample would be desirable, we believe that the distinctive features of these specimens signal that the Cuzco population is a separate taxonomic unit, and that they do not represent individual or clinal variation, especially given the relative uniformity (other than individual variation in number of white facial feathers) of the southern population over a range of at least 550 km. Therefore, we propose to name the southern population:

Cinnycerthia fulva gravesi,
new subspecies

Holotype.—Academy of Natural Sciences of Philadelphia (ANSP) 138618; ♂ collected at Incachaca, 8000 ft, depto. Cochabamba, Bolivia, on 4 Jun 1937 by M. A. Carriker, Jr.

Paratypes.—Peru (depto, Puno): Santo Domingo, 6000 ft (AMNH 146335; ♂, 14 Sep 1916; H. Watkins); Santo Domingo, 4500 ft (AMNH 502123; ♂, 24 May 1901; G. Ockenden); Limbani, 9500 ft (AMNH 502122; ♀, 28 Feb 1904; G. Ockenden); Valcón, 5 km NNW Quiaca, 3000 m (Louisiana State University Museum of Natural Science [LSUMZ] 98604-607; 11–24 Oct 1980; L. C. Binford, M. Sánchez S., T. S. Schulenberg); Abra de Maruncunca, 10 km SW San Juan del Oro, 2000 m (LSUMZ 98608; 26 Nov 1980; T. S. Schulenberg). Bolivia (depto, La Paz): Río Zongo Valley, 1.9 road km downstream Saenaní, 2236 m (Delaware Museum of Natural History 67191; ♂, 15 Mar 1979; D. C. [Cole] Schmitt); Sandillani, 6800 ft (ANSP 121196-197; males, 13 and 19 Dec 1934;

M. A. Carriker, Jr.); Sacramento Alto, 2575 m (LSUMZ 90885-890; 27–31 Jul 1979; L. S. Hale and J. V. Remsen); ca. 1 km S Chuspipata, 2725 and 3050 m (LSUMZ 102809-816; 30 Jul–5 Aug 1981; S. M. Lanyon, J. V. Remsen, T. S. Schulenberg, D. A. Wiedenfeld). Bolivia (depto, Cochabamba, prov. Chapare): Incachaca, 11000 ft (ANSP 138617; ♂, 10 Jun 1937; M. A. Carriker, Jr.); 10000 ft (ANSP 138616; ♀, 1 Jun 1937; M. A. Carriker, Jr.); 2600 m (Carnegie Museum of Natural History [CM] 85205, 85234; 25 Mar and 5 Apr 1921; J. Steinbach); 2500 m (CM 85176; 28 Feb 1921; J. Steinbach); 2200 m (LSUMZ 38048; 17 (?) Nov 1921; J. Steinbach); 2225 m (CM 120415; 7 Sep 1927; J. Steinbach); El Limbo, 2200 m (LSUMZ 36405; 14 Oct 1960; F. Steinbach).

Diagnosis.—*Cinnycerthia f. gravesi* can be distinguished from *C. f. fulva* by its whitish, rather than buffy brown (close to Clay Color), superciliary stripe and forecrown (Fig. 1). It also is paler below than *C. f. fulva* (but only two of the latter are available for comparison). In having a whitish superciliary that contrasts strongly with darker auriculars, the head pattern resembles that of distant *C. f. fitzpatricki* more so than adjacent *C. f. fulva*.

Description.—Forecrown mostly dull white, mixed with two or three brown feathers. Crown and rest of dorsum rich brown (near Proutt's Brown). Uppertail coverts slightly more reddish than back. Outer webs of remiges (and both webs of inner secondaries) rich brown strikingly banded with narrow blackish bars; inner webs of most remiges dark fuscous. Upper wing coverts rich brown, faintly banded blackish; under-wing coverts rich brown. Rectrices rich rufous brown strikingly banded with narrow blackish bars, slightly less conspicuously than remiges. Conspicuous buffy whitish superciliary extends from nares over eye to neck and becomes darker posteriorly; it is sharply demarcated from the crown, which tends to be slightly darker at border of superciliary, and from broad, rich

brown (near Proutt's Brown) postocular stripe. Narrow whitish eyering. Loes brown mixed with white. Lower portion of auricular below postocular area is dull light brownish (near Cinnamon), distinctly demarcated from postocular area. Malar region same color as lower auriculars. Chin and throat buffy whitish, noticeably paler than rest of underparts and malar area but not distinctly demarcated from them. Breast brown (Sayal Brown), blending to more rufous brown belly. Lower flanks, thighs, and undertail coverts darker (Proutt's Brown) than rest of underparts, as dark as back. Soft part colors recorded by Carriker: iris gray; bill black, bluish black below; legs dark horn. Measurements (mm): wing chord = 57.0; exposed culmen = 11.6; tail length = 56.7; tarsus length = 20.9.

Variation.—As noted by Brumfield & Remsen (1996), about 30% of the individuals examined show "extra" white in the face, similar to but not nearly as extensive as variation in *C. peruana* (Graves 1980). Otherwise, the series is relatively uniform in plumage color and pattern, with individuals from depto. Puno virtually identical to individuals from depto. Cochabamba. Also, specimens taken in 1980 from depto. Puno are virtually identical in plumage to those taken there from 1904 to 1916, and so we see no evidence for "foxing." However, the recent specimens from July and August from Chuspipata and Sacramento Alto, depto. La Paz, are puzzling. These stand out strongly as being less reddish above and below, paler ventrally, and darker dorsally. Although we previously attributed this to seasonal wear, we now think that the differences are too great to be caused by wear, and we found no seasonal effects on plumage color in deptos. Puno or Cochabamba. Furthermore, the plumage of these puzzling specimens does not seem to be more abraded than specimens taken elsewhere at other times of the year. We would be tempted to describe the depto. La Paz population as a distinct subspecies, but two specimens from Sandillani, fewer than 10 km away and in

the same drainage, are virtually identical to specimens from elsewhere in the range. The basis for this variation can only be resolved by further field-work in the area.

Natural history.—The scant information published concerning the natural history of *Cinnycerthia peruana* (e.g., Ridgely & Tudor 1989, Fjeldså & Krabbe 1990) probably applies in general to *C. f. gravesi*. The only published information that applies explicitly to *C. f. gravesi* comes from Remsen (1985), who classified it as a rare insectivore at a study site at 3050 m and as occurring primarily in single-species flocks. Here, we expand on Remsen's (1985) data on diet, breeding condition, and body weights by including specimens from other localities in Bolivia and Peru. Of 11 stomach contents recorded, all consisted of arthropods. Of six specimens collected in October, three were in breeding condition (males with testes 4×4 and 6×3 mm; female with brood patch); a female collected in March may have been breeding (ovary 5×5 mm, largest ovum 1×1 mm). Fjeldså & Krabbe (1990) collected a male with enlarged testes in January. Only one of the 13 specimens from July and August was possibly in breeding condition: a male with testes 3×2 mm. The body masses of five males with "no" or "light" fat were 14.5, 15, 16, 18, and 18 g; one with "moderate fat" weighed 22.5 g. The body masses of 12 females with "no" or "light" fat ranged from 12.4 to 19.2 g (mean 15.2); one with "moderate" fat weighed 16 g. Body or tail molt was recorded on the labels of 6 of 14 specimens collected in July and August, but none of the six specimens from October. Foraging observations of *C. f. gravesi* are difficult to obtain because this species is wary and remains on or near the ground in dense undergrowth.

Etymology.—It is a pleasure to name this distinctive taxon for Gary R. Graves. Not only has he studied plumage variation in the genus (Graves 1980), but his synthetic analyses of geographic variation of Andean birds, which have included *Cinnycerthia*

wrens (Graves 1985), have contributed greatly to knowledge of Andean birds.

We previously proposed the English name "Superciliated Wren" for *C. fulva* (Brumfield & Remsen 1996), a slight modification of Hellmayr's (1934) English name for this taxon, "Superciliated Brown Wren." We overlooked, however, that Hellmayr and everyone since then used "Superciliated Wren" for *Thryothorus superciliaris*. Unfortunately, virtually all *Thryothorus* species have superciliaries, whereas the presence of a strong superciliary distinguishes *C. fulva* from other *Cinnycerthia*. Nevertheless, we do not wish to change a long-established English name. Therefore, we propose "Fulvous Wren" as the English name for *C. fulva*.

Acknowledgments

We thank the following for specimen loans: David Willard and Scott M. Lanyon (Field Museum of Natural History), François Vuilleumier (American Museum of Natural History), Mark B. Robbins and Frank B. Gill (Academy of Natural Sciences, Philadelphia), D. Scott Wood and Kenneth C. Parkes (Carnegie Museum of Natural History), and Gene Hess (Delaware Museum of Natural History). Richard C. Banks, Frederick M. Bayer, and C. Brian Robbins provided valuable comments on the manuscript. We thank the following for permits and assistance with LSUMZ field-work in Peru and Bolivia in 1980 and 1981 that produced the specimens examined herein: the Academia Nacional de Ciencias (La Paz), Gastón Bejarano, L. C. Binford, L. Campos L., A. P. Capparella, Dirección General Forestal (Ministerio de Agricultura, Lima), Groves Construction Company, Linda S. Hale, Tom and Jo Heindel, S. M. Lanyon, Manuel Sánchez S., James Solomon, T. S. Schulenberg, A. Urbay T., and D. A. Wiedenfeld. Babette C. Odom, John S. McIlhenny, E. W. Mudge, and H. Irving and Laura Schweppe sponsored LSUMZ

field-work in 1980 and 1981 in Peru and Bolivia.

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